

# The rediscovery of *Boronia inflexa* subsp. *grandiflora* (Rutaceae)

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## Summary

Duretto, M.F., Grimshaw, P. & Sparshott, K. (2005). The rediscovery of *Boronia inflexa* subsp. *grandiflora* (Rutaceae). *Austrobaileya* 7(1): 171–173. Details of the first collection of *Boronia inflexa* Duretto subsp. *grandiflora* Duretto with accurate site and habitat information are presented. The descriptions for the species and subspecies are revised and an amended key to the subspecies of *B. inflexa* is provided. The habitat of the *B. inflexa* subsp. *grandiflora* is discussed for the first time and it is recommended that the conservation status of the subspecies be revised to ‘Critically Endangered’.

Key Words: Rutaceae, *Boronia inflexa*, *Boronia inflexa* subsp. *grandiflora*, Queensland flora

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## Introduction

*Boronia inflexa* Duretto subsp. *grandiflora* Duretto was described in a revision of *Boronia* section *Cyanothammus* for eastern Australia (Duretto 2003). This taxon was first identified by Ross (1983) as a large-flowered form of *B. bipinnata* from the Granite Belt of south-eastern Queensland. It may have been part of what was referred to by McDonald *et al.* (1995) as *B. sp. aff. bipinnata* in their *Flora of Girraween and Bald Rock National Parks*. *Boronia inflexa* contains four subspecies, two of which have large flowers: *B. inflexa* subsp. *grandiflora* (Qld) and *B. inflexa* subsp. *torringtonensis* Duretto (N.S.W.). The other two subspecies, *B. inflexa* subsp. *inflexa* and *B. inflexa* subsp. *montiazura* Duretto, have smaller flowers and are both found in the ‘granite belt’ of south-eastern Queensland. The former is also known from an isolated population in Gibraltar Range (N.S.W.).

In the discussion under *B. inflexa* subsp. *grandiflora*, Duretto (2003) noted that the taxon was known from two collections with vague collection details. As these collections were from the western edge of the known distribution of *B. inflexa* subsp. *inflexa* there was the

possibility that these two taxa were not taxonomically distinct but represented extremes in flower size. Given that *B. inflexa* subsp. *grandiflora* is a large flowered and showy taxon and thus would tend to be noticed, the lack of collections since 1973 indicated that it was possibly extinct.

During surveys of the north-west portion of Girraween National Park in November 2000, two of the authors (Grimshaw & Sparshott) collected material of a large flowered taxon which had affinities to *B. bipinnata*. This material was made available to Duretto in late 2003 who determined that the material could be assigned to *B. inflexa* subsp. *grandiflora*. The type locality of this taxon is ‘property of W. McDonagh, Lyra’ which is close to where the recent collection was made in Girraween National Park. It would be reasonable to suppose that these two collections have come from the same population.

Revised descriptions for *B. inflexa* and *B. inflexa* subsp. *grandiflora* are given below, together with the first account of the habit and habitat of the latter. The revised descriptions have necessitated minor amendments of the key to the subspecies of *B. inflexa* as published by Duretto (2003).

**Taxonomy**

**Boronia inflexa** Duretto, *Muelleria* 17: 40, figs 2I-K (2003). **Type:** Queensland. DARLING DOWNS DISTRICT: Mt Norman, Girraween National Park, 28° 52'S 151° 58'E, 27 September 1977, *J. Armstrong 1149* & *J.M. Powell* (holo: BRI [AQ383403]; iso: CANB 8305848, NSW 385918).

Erect, woody shrub to 2 m tall and 3 m wide. Branchlets not or slightly glandular tuberculate, hispidulous or pilose; hairs concentrated between leaf decurrencies, becoming glabrous with age, hairs to 0.5(–0.75) mm long. Leaves imparipinnate or rarely bipinnate (subsp. *inflexa*), 3–5(–7)-foliolate, entire leaf in outline 6–25 mm long, 6–35 mm wide, not obviously glandular, glabrous to minutely pilose; petiole 3–10 mm long; rachis segments 3–9 mm long; terminal leaflets 1–16 mm long, 0.5–2.5 mm wide, linear, flat, concolorous, dorsiventral, margin entire, tip acute; lateral leaflets similar to terminal leaflets or longer, 1.5–16 mm long. Inflorescence 1–3(–7)-flowered, not obviously glandular, glabrous or glabrescent, smaller to slightly longer than leaves; peduncles 0.5–9 mm long, secondary inflorescence units 0.5–1 mm long; prophylls 0.5–3 mm long, glabrous or glabrescent with a few hairs towards apex or minutely ciliate; metaxyphylls 0.5–1.5 mm long; anthopodia 1–3 mm long. Sepals deltate to narrowly deltate, 1.5–3 mm long, 0.75–1.5 mm wide, not obviously glandular, flat, glabrous to

minutely ciliate, tip acute or acuminate due to involute margins. Petals white to pink, 2.5–7.5 mm long, not obviously glandular, glabrous to minutely ciliate, persistent. Staminal filaments pilose, slightly glandular tuberculate towards apex; anther loculi glabrous, apiculum minute, glabrous to pilose. Ovary glabrous; style glabrescent to pilose; stigma entire, minute, scarcely wider than the style. Cocci 3–3.5 mm long, 1–2 mm wide, glabrous or with few hairs along suture. Seed dull, grey, 2.5–3 mm long, 1–1.5 mm wide, irregularly rugulose, without wax platelets between tubercula.

**Conservation status:** Three of the four subspecies of *B. inflexa*, namely *B. inflexa* subsp. *grandiflora*, *B. inflexa* subsp. *montiazura* and *B. inflexa* subsp. *torringtonensis*, can be considered Critically Endangered (IUCN 2001) though the last two lack satisfactory field data. *B. inflexa* subsp. *inflexa* is found over a wider area but accurate population sizes are unknown. Populations seen in Gibraltar National Park (see Duretto 2003) and Girraween National Park (Grimshaw pers obs.) contained few plants.

Given that populations appear to be small and occur over very limited areas, the species as a whole, could be considered to be Critically Endangered. Only *B. inflexa* subsp. *inflexa* and *B. inflexa* subsp. *grandiflora* are conserved in National Parks.

**Key to the subspecies of *Boronia inflexa***

- 1. Leaflets minutely pilose . . . . . 2  
    Leaflets glabrous or glabrescent . . . . . 3
- 2. Petals 2–3.5 mm long; anther apiculum glabrous . . . . . subsp. **inflexa**  
    Petals 6–7.5 mm long; anther apiculum with a few hairs . . . . . subsp. **grandiflora**
- 3. Terminal leaflets 3–7 mm long, 0.5–0.75 mm wide . . . . . subsp. **montiazura**  
    Terminal leaflets (4–)10–16 mm long, (0.75–)1–1.25 mm wide . . . . . subsp. **torringtonensis**

**Boronia inflexa** subsp. **grandiflora** Duretto, *Muelleria* 17: 43, figs 2 N-O (2003). **Type:** Queensland. DARLING DOWNS DISTRICT: On property of W.McDonagh, Lyra, Qld, 22 October 1962, *K.N. Shea S124* (holo: BRI [AQ151006], transparency MEL 2068529).

Shrub to c. 1.5 m tall. Branchlets not glandular

tuberculate, pilose, mainly between leaf decurrencies, hairs to 0.5(–0.75) mm long. Leaves imparipinnate, 3(–7)-foliolate, entire leaf in outline (9–) 15–25 mm long, (8–) 17–35 mm wide, sparsely and minutely pilose; petiole 4–10 mm long; rachis segments 3–9 mm long; leaflets 4–15 mm long, 0.75–1.25 mm wide. Inflorescence axillary, 1–3-flowered, smaller or

c. as long as leaves; peduncles 2–7 mm long; prophylls 1–3 mm long, ciliate towards apex; anthopodia 1.5–3 mm long. Sepals deltate, 2–3 mm long, 1.25–1.5 mm wide, glabrescent along margin and/or towards apex, tip acuminate due to involute margins. Petals pale pink and tinged with white, 6–7.5 mm long, minutely ciliate. Anther apicula with a few simple hairs. Style pilose. Cocci and seed not seen.

**Specimens examined:** Queensland. DARLING DOWNS DISTRICT: Near Amiens, SE Qld, Sep 1973, *Harslett s.n.* (NE2638 [transparencies BRI, MEL 2068530]); NW section of Girraween NP near Lyra, Dec 2000, *Grimshaw PG2857 & Sparshott* (BRI, NSW).

**Distribution and ecology:** The only known extant population of *B. inflexa* subsp. *grandiflora* is found in Girraween National Park on the Granite Belt of southeast Queensland. The two older known collections give imprecise locality information of near Amiens and Lyra, also in the Granite Belt. The population in Girraween National Park was found in *Eucalyptus prava*, *E. andrewsii* and *E. caleyi* woodland with a dense, shrubby and fairly diverse understorey. Scattered throughout the area are granitic pavements and outcrops. Flowering material has been collected from September to December.

**Conservation status:** Duretto (2003) indicated that a conservation code of 2K (following the format of Briggs & Leigh 1996) was appropriate for *B. inflexa* subsp. *grandiflora* as only two collections with vague locality information were known. The third collection of this taxon (*Grimshaw PG2857 & Sparshott*) has precise locality and habitat information and was recently made within Girraween National Park. The taxon was seen in only one valley during a survey of the area (*Grimshaw & Sparshott*, pers. obs.) and approximately a dozen mature plants were seen over an area of 1–2 hectares. The site was burnt in October 2002 (*Sparshott*, pers. obs.) although it is not known how the population was affected. One of the authors (*Grimshaw*) has travelled extensively in the park over many years (in part as a park ranger between 1973 and 1982) and has not observed it elsewhere. Given this additional information, conservation codes of 2ECt (following Briggs & Leigh 1996), or CR (Critically Endangered; IUCN 2001) are appropriate. The taxon satisfies

Critically Endangered criterion D [Population size estimated to number fewer than 50 mature individuals] of the IUCN Red List. Potential threats to the taxon's survival would include wildfires (especially if these occurred too frequently), any development [including roads, fire trails and walking tracks] in the area, and weed incursions. Further surveys are urgently required to determine if there are any other populations of this taxon, as is monitoring of the only known population.

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### References

- IUCN (2001). *IUCN Red List Categories and Criteria: version 3.1*. IUCN Species Survival Commission. IUCN: Gland, Switzerland/Cambridge, UK.
- BRIGGS, J.D. & LEIGH, J.H. (1996). *Rare or Threatened Australian Plants*, revised edition. CSIRO Australia: Collingwood.
- DURETTO, M.F. (2003). Notes on *Boronia* (Rutaceae) in eastern and northern Australia. *Muelleria* 17: 19–135.
- MCDONALD, B., GRAVATT, C., GRIMSHAW, P. & WILLIAMS, J. (1995). *The Flora of Girraween and Bald Rock National Parks*. Queensland Herbarium, Queensland Department of Environment and Heritage: Brisbane.
- ROSS, E.M. (1983). Rutaceae. In T.D. Stanley & E.M. Ross (eds), *Flora of South-eastern Queensland* 1: 440–470. Queensland Department of Primary Industries miscellaneous publication 81020: Brisbane.